



A.D. 1838 N° 7604.

S P E C I F I C A T I O N

OF

THOMAS ORAM.

MANUFACTURE OF FUEL.

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Manufacture of Fuel.

ORAM'S SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, THOMAS ORAM, of No. 27, East Street, Red Lion Square, in the County of Middlesex, Gentleman, send greeting.

WHEREAS Her present most Excellent Majesty Queen Victoria, by Her
5 Letters Patent under the Great Seal of Great Britain, bearing date at Westminster the Twenty-sixth day of March, in the first year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Thomas Oram, Her especial license, full power, sole privilege and authority, that I, the said Thomas Oram, my exors, admors, and assigns, or such others as I, the
10 said Thomas Oram, my exors, admors, or assigns, should at any time agree with, and no others, from time to time and at all times during the term of years therein expressed, should and lawfully might make, use, exercise, and vend, within England, Wales, and the Town of Berwick-upon-Tweed, and also in all Her said Majesty's Colonies and Plantations abroad, my Invention of
15 "IMPROVEMENTS IN THE MANUFACTURE OF FUEL;" in which said Letters Patent is contained a proviso that I, the said Thomas Oram, shall cause a particular description of the nature of my said Invention, and in what manner the same is to be performed, to be inrolled in Her said Majesty's High Court of Chancery within six calendar months next and immediately after the date of
20 the said in part recited Letters Patent, as in and by the same, reference being thereunto had, will more fully and at large appear.

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NOW KNOW YE, that in compliance with the said proviso, I, the said Thomas Oram, do hereby declare that the nature of my said Invention, and the manner in which the same is to be carried into effect, are fully described and ascertained in and by the following statement thereof (that is to say) :—

It is well known that in getting coal much small or dust is produced, which 5 is of comparatively little value. Now the object of my Invention is the compounding such dust or small of coal with other matters in such proportions as to render the compounds of as great, and under some circumstances of greater, value than the large of such coal, when the relative quantity of effect obtained therefrom, and the convenience of stowage, is taken into 10 account; and my Invention consists in combining and compressing the small or dust of coal with certain materials into fuel, as will be hereafter described. The materials employed by me are, first, small or dust of bituminous coal; secondly, mud, alluvial deposits, marl, clay, or any other earth containing vegetable matter; thirdly, water; and there are several other substances 15 which may, under certain circumstances, be employed with the above three, but are not absolutely necessary to make a good fuel, such as mineral tar, coal tar, gas tar, mineral pitch, vegetable pitch, resin, asphaltum, or any other bituminous matter, chalk, or lime, sawdust, anthracite or stone coal, coke or coke dust, and breeze. And in order to give the best information in my 20 power for carrying out my Invention, I will describe a process of combining and forming these materials into several species of fuel.

DESCRIPTION OF THE PROCESS EMPLOYED.

Take thirty pounds of vegetable tar, coal tar, gas tar, mineral pitch, vegetable pitch, resin, asphaltum, or any other bituminous matter (note, the vegetable 25 tar, coal tar, and gas tar will readily mix with the other ingredients used; but if either mineral pitch, vegetable pitch, resin, asphaltum, or any other bituminous matter be employed it should first be dissolved in boiling water, and whilst hot mixed with the other materials), one hundred and eighty pounds of dry mud (the best for the purpose is that taken from 30 rivers), clay, marl, or any other earth containing vegetable matter, and fifty gallons of water, and mix them together; then add by degrees thirty pounds of powdered lime (stone lime is the best) or chalk passed through a fine sieve, and one ton of small or dust of bituminous coal. The whole should then be well stirred up with rakes or other suitable instruments 35 until the several materials are thoroughly combined; or they may be mixed together by machinery, it being necessary to obtain a perfect blending of the materials in order to their adhering together and burning equally. The

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materials so combined are then to be put into moulds of any shape (though it were better that they should be either square, oblong, or angular), the dimensions of which may be of any size found most convenient, and then pressed either in a screw lever or other press. But I claim the combination as an
5 Invention, whether the same be submitted to pressure or not, the object and advantage of pressing being the holding of the materials together, to increase the period and duration of combustion and to reduce the bulk as much as practicable. The lumps or blocks thus produced are to be placed to dry, leaving spaces between the lumps for the circulation of the air; and it will
10 facilitate the drying to place them in a room or shed, the atmosphere of which can be heated, though in warm dry weather this will not be necessary. I have also to describe another species of fuel which forms a desirable fuel for use in furnaces having a powerful draught. Take ten hundredweight of small or dust of bituminous coal, ten hundredweight of small oven made coke
15 or coke dust (which proportions will admit of variation), thirty pounds of tar, or any other of the bituminous matters before specified, two hundred pounds of dry mud, clay, marl, or other earth containing vegetable matter, fifty gallons of water, and thirty pounds of lime or chalk, and mix, mould, and press them in precisely the same manner as described for manufacturing the first-men-
20 tioned fuel.

I have also to describe a third species of fuel. Take fifteen hundredweight of small or dust of bituminous coal, five hundredweight of breeze, which proportions will also admit of variation. Thirty pounds of tar, or any other of the bituminous matters before specified. Two hundred pounds of dry clay,
25 marl, mud, or other earth containing vegetable matter, fifty gallons of water, and thirty pounds of lime or chalk mixed, moulded, and pressed in like manner.

I have also to describe a fourth species of fuel. Take thirteen hundredweight of the anthracite or stone coal, seven hundredweight of small or dust
30 of bituminous coal (which proportions will admit of considerable variation), forty gallons of water, forty pounds of tar or other bitumen as before, thirty pounds of lime or chalk, and one hundred and eighty pounds of dry clay, mud, marl, or other earth containing vegetable matter mixed, moulded, and pressed in like manner.

35 I have also to describe a fifth species of fuel. Take fifteen hundredweight of small or dust of bituminous coal, five hundredweight of saw-dust (which proportions will admit of considerable variation), forty pounds of tar or other bitumen, as before, two hundred pounds of dry clay, mud, marl, or other earth containing vegetable matter, seventy gallons of water (the quantity of

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water must be varied in proportion as the quantity of saw-dust is used), thirty pounds of lime or chalk, mixed, moulded, and pressed in like manner.

I have also to describe a sixth species of fuel. Take five hundredweight of peat turf, peat earth, peat moss, or bog earth, five hundredweight of saw-dust, ten hundredweight of small or dust of bituminous coal, thirty pounds of 5 lime or chalk, thirty pounds of tar or other bitumen, as before, two hundred pounds of dry clay, mud, marl, or other earth containing vegetable matter, and seventy gallons of water, mixed, moulded, and pressed in like manner.

I would observe that in manufacturing each of the above species of fuel, the ingredients, "lime" and "bitumen," may be omitted; but I find that the 10 use of them not only increases the adhesion of the other materials, but the lime has the effect of neutralizing the sulphurous acid gas contained in the coal, and the bitumen adds to the ready combustion of the fuel. And further, that I prefer the use of vegetable tar to any other bitumen, of mud (especially river mud, and more particularly such as is taken from the river Thames) to 15 any other earth, of stone lime to chalk or any other description of lime, and the saw-dust from the pine to the saw-dust of any other description of timber.

Having thus described the nature of my Invention and the process of manufacture, I would remark that I do not confine myself to any particular process, it being evident that the object to be obtained is a careful combining 20 or mixing of the materials herein mentioned, and the subsequent pressing the same into lumps or blocks, of convenient size and of the forms most advantageous for packing or stowage, and whatever process may be adopted, it does not alter the nature of my Invention; and I would further observe that I do not claim the application of each of the several materials separately as a fuel, whether 25 pressed or unpressed, as I am aware that some of them have been used as a fuel before, such as anthracite or stone coal, coke, breeze, peat earth, peat turf, peat moss or bog earth, small coal or coal dust, in combination with mud, marl, or clay in certain proportions. But what I claim is, the combining small or dust of bituminous coal with marl, clay, mud, alluvial deposits or other earth 30 containing vegetable matter, and with water in all cases where the weight or quantity of small coal or coal dust is equal to or exceeds the weight or quantity of mud, clay, or other earth used, whether the same has or has not any one or more of the other matters herein mentioned; and further I claim the compressing of small coal or coal dust in combination with any of the above- 35 mentioned matters into angular blocks or shapes suitable for better stowage, but I do not claim as new, the application of tar, pitch, or other bitumen in combination with coal, or with any other of the matters, various attempts having been before made for employing them as fuel; nor do I confine myself

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to the using the whole or even the larger number of the several matters before enumerated, for the formation of the several descriptions of fuel above mentioned, though I believe the compounds herein severally set forth to be the best compounds for fuel.

5 In witness whereof, I, the said Thomas Oram, have hereunto set my hand and seal, this Twenty-sixth day of September, One thousand eight hundred and thirty-eight.

THOMAS (L.S.) ORAM.

AND BE IT REMEMBERED, that on the Twenty-sixth day of September,
10 in the year of our Lord 1838, the aforesaid Thomas Oram came before our said Lady the Queen in Her Chancery, and acknowledged the Specification aforesaid, and all and every thing therein contained and specified, in form above written. And also the Specification aforesaid was stamped according to the tenor of the Statute made for that purpose.

LYNCH.

15 Inrolled the Twenty-sixth day of September, in the year of our Lord One thousand eight hundred and thirty-eight.

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